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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,173	11/25/2003	Steven Glenn Keener	02-1231(BOE0391)	1172
64722	7590	09/28/2006	EXAMINER	
OSTRAGER CHONG FLAHERTY & BROLTMAN, P.C.			WYSZOMIERSKI, GEORGE P	
250 PARK AVENUE			ART UNIT	
SUITE 825			PAPER NUMBER	
NEW YORK, NY 10177-0899			1742	

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/707,173	Applicant(s) KEENER, STEVEN GLENN	
	Examiner George P. Wyszomierski	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 14-34 and 38-43 is/are rejected.
- 7) ☒ Claim(s) 11-13 and 35-37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/24/06</u> . | 6) <input type="checkbox"/> Other: _____ |

1. The Request for Continued Examination and fee filed July 24, 2006 is considered proper. The amendment previously submitted on July 18, 2006 has been entered, and prosecution continues as follows.

2. Claims 10, 25 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) It is unclear what distinction, if any, could be made between what is defined in instant claims 10 and 42.

b) Is claim 25 further limiting the "forming" step of the independent claim, or is this claim defining additional, separate steps?

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-10, 14-34, and 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Choi et al. Journal of Alloys and Compounds article (cited on the attached PTO-1449 form), in view of Carter et al. (U.S. Patent 3,017,299) or Shibue et al. (U.S. Patent 5,372,663), further in view of pp. 586-591 and 608-620 of the ASM Handbook, and further in view of Lavernia (U.S. Patent 5,939,146) or Hebsur (U.S. Patent 6,454,992).

Art Unit: 1742

The Choi article discloses a process which includes cryogenically milling a relatively coarse grained titanium alloy thereby resulting in a relatively finer grained material in the range of a number of nanometers, followed by densifying the material by e.g. vacuum hot pressing. The milling in Choi is done with a stearic acid additive, and the atmosphere includes argon. With respect to instant claims 15, 16, 19, 20, 29, 30, 33 and 34, the examples of powder prepared by cryogenic milling in Choi have a grain size of 16 nm; it is axiomatic that at some point during the milling process the Choi materials would have had a grain size within the limits as recited in the instant claims, i.e. every size smaller than the original size yet larger than the final size of Choi would be achieved by that process. Choi does not specify the degassing or forming steps as recited in the instant claims, and does not specify the milling media as recited in claims 1 and 31 as amended. However,

a) Both Carter et al. and Shibue et al. indicate that it was known in the art, at the time of the invention, to degas titanium alloys, and these patents further describe the advantages of employing a degassing step. Therefore the examiner's position is that it would have been obvious to incorporate a degassing step into the process as described by Choi et al.

b) The cited excerpts from the ASM Handbook indicate that the various types of forming set forth in the instant claims (e.g. extruding, cold working), as well as the subsequent steps as recited in instant claims 3 and 25-28 were known at the time of the invention to be conventional steps in the art of titanium alloy processing.

c) The Lavernia and Hebsur patents indicate that it was known in the art, at the time of the invention, to employ a medium as presently claimed (e.g. liquid nitrogen) when cryomilling metallic materials; see Lavernia column 5, line 21 or Hebsur column 1, line 64.


Thus, the disclosure of Choi et al., together with those of Carter or Shibue et al., the ASM Handbook, and Lavernia or Hebsur would have taught the process as presently claimed to one of ordinary skill in the art.

5. Claims 11-13 and 35-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or suggest processes involving alloys as recited in these claims.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. All patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, (571)-273-8300. This Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
GROUP 1700

GPW
September 25, 2006